CLAIMS

1. A method of making an aperture in a polymer comprising:

a) coating a mastermold with a curable polymer;

b) flowing air through an aperture of about 0.1 to 10 micron in the mastermold; and

c) curing the polymer on the coated mastermold to form an aperture in the polymer.

2. The method of claim 1, further comprising peeling the polymer from the mastermold.

3. The method of claim 1, wherein the polymer is cured by heating.

4. The method of claim 1, wherein the curable polymer is a silicone polymer.

5. The method of claim 4, wherein the silicone polymer is PDMS.

6. The method of claim 1, wherein the aperture is about 1-2 micron.

7. A method of making an electrode comprising:

a) coating a support structure with freshly prepared polymer and placing the support structure on a mastermold;

b) flowing air through an aperture of about 0.1 to 10 micron in the mastermold to form a hole in the freshly prepared polymer layer; and

c) curing the polymer to form an electrode.

8. The method of claim 7, further comprising peeling off the polymer from the mastermold.

9. The method of claim 7, wherein the polymer is cured by heating the mastermold.

10. The method of claim 7, wherein the polymer is a silicone polymer.

11. The method of claim 10, wherein the silicone polymer is PDMS.

12. The method of claim 7, wherein the electrode is a planar patch electrode.

13. An electrode obtained by the method of claim 7.

14. An electrode of claim 7 comprising:

a) a silicone polymer molded so as to form a partition comprising an aperture, said apertured-partition capable of forming a high resistance seal of at least 100 MΩ with a biological membrane; and

b) a backplate associated with the apertured-partition, said backplate comprising an electrically conductive contact, wherein the association of the apertured-partition and the backplate forms a compartment associated with the aperture, and wherein the said compartment contains the electrically conductive contact.

15. An electrode of claim 14, further comprising walls associated with the electrode so as to form a chamber.